

WELL DECOMMISSIONING

(No.)
Code 351

Natural Resources Conservation Service
Conservation Practice Standard

I. Definition

Well decommissioning (abandonment) is the sealing and permanent closure of a water well no longer in use.

II. Purposes

This practice serves to:

- Prevent entry of vermin, debris, or other foreign substances into the well or well borehole;
- Eliminate the physical hazard of an open hole to people, animals, vehicles, and machinery;
- Prevent entry of contaminated surface water into the well and migration of contaminants into an unsaturated (vadose) zone or saturated zone;
- Prevent the commingling of chemically or physically different ground waters between separate water bearing zones.

III. Conditions Where Practice Applies

This practice applies to any drilled, dug, driven, jetted, bored, or otherwise constructed vertical water well determined to have no further beneficial use.

IV. Federal, State, and Local Laws

Well decommissioning shall comply with all federal, state, and local laws, rules or regulations. The operator is responsible for securing permits if required.

Wisconsin statutes require that an individual sealing a water supply well must be:

- A licensed well driller or a licensed pump installer or an individual under their supervision.

- A certified water system operator or an individual under their supervision, and the well is within the service area of the local governmental water system for which the certified operator works.

Wells shall be decommissioned in accordance with the requirements set forth in Wisconsin Administrative Code, Chapter NR 812.26 - Well and Drillhole Abandonment (NR 812.26). After decommissioning, an abandonment report needs to be filed with the Wisconsin Department of Natural Resources.

V. Criteria

General criteria for design parameters, acceptable installation processes, or minimum performance requirements applicable to all purposes named above:

Data collection – All available data for the well shall be collected and reviewed. Well construction reports shall be obtained when available from the Wisconsin Geological and Natural History Survey. At a minimum, the well diameter, depth to water, and the total depth of the well must be determined for decommissioning.

Pre-decommissioning requirements – All debris, pumps, piping, ungrouted liner pipe, and other foreign material shall be removed if possible before decommissioning.

Casing – The well casing shall be left in place when a well is decommissioned, except that the casing may be removed if the well is completely filled with sealing material before the well casing pipe is pulled and any sealing material that settles in the drillhole is replaced.

Decommissioning of wells with inadequate grouting or sealing of the annular space outside the well casing pipe shall be performed to ensure complete sealing of the annular space.

Techniques are situation dependent and may include reaming a new annular space outside the well casing pipe, use of pressure grouting methods, or perforation of the well casing pipe.

The well casing pipe may be cut off three feet below the ground surface or to a depth below any future building foundations.

Sealing and fill materials – Properties of sealing and fill materials shall conform to characteristics listed in NR 812.26. Sealing and fill materials shall be clean and free of organic or other foreign matter. The gradation shall be such that bridging will not occur during placement.

Bentonite chips may only be used for wells with a four inch (4") minimum diameter not deeper than 500 feet and having not more than 350 feet of standing water in them.

Placement of materials – Wells shall be decommissioned by placing the materials from the bottom of the well to the surface by methods that will avoid segregation, bridging, or dilution of material in accordance with NR 812.26 and Wisconsin Construction Specification 19 - Well Abandonment/Decommissioning.

Well pits – When a well terminating in a pit is decommissioned, the pit shall also be decommissioned except when the pit is a subsurface pump room adjoining a basement. Pits shall be abandoned by perforating the floor, knocking out one wall, and filling the pit with clean native soil less permeable than the soil surrounding the pit.

Surface seal – The interval between the ground surface and the top of the cut-off casing shall be filled with soil materials that achieve a hydraulic conductivity equivalent to or less than the surface soil surrounding the well. The ground surface at the sealed well site shall be mounded and graded in a manner that prevents ponding of surface runoff on the site.

VI. Considerations

Additional recommendations relating to design which may enhance the use of, or avoid problems with, this practice, but are not required to ensure its basic conservation function are as follows:

1. An abandoned well should be decommissioned in a manner that restores the original hydrogeologic conditions of the well site and does not preclude the use of the site from future land management practices.
2. A more detailed geologic investigation may be beneficial in wells over 250 feet deep to provide lower cost alternatives for filling and sealing.
3. Local frost heave, fracturing hazards, and future land uses should be considered in the design of the casing cut-off and surface seal.
4. Licensed well drillers and pump installers should be retained to fill and seal wells.

VII. Plans and Specifications

Plans and specifications for decommissioning water wells shall be consistent with this standard and shall describe the requirements for applying the practice to achieve its intended purposes.

VII. Maintenance

The practice site shall be inspected periodically to ensure that the decommissioned well and the adjacent area have not settled or eroded, or are otherwise adversely disturbed. The well site and adjacent ground surfaces shall be maintained in a manner that prevents ponding of surface runoff on the site.

VIII. References

Wisconsin Construction Specification 19 - Well Abandonment / Decommissioning, NRCS, Wisconsin Field Office Technical Guide, Section IV.

Wisconsin Administrative Code, Chapter NR 812, Well Construction and Pump Installation, Department of Natural Resources.

Well Abandonment (PUBL-DG-016), Wisconsin Department of Natural Resources.